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- Baur, G.*—Osteologische Notizen über Reptilien. Fortsetzung I., II. Zool. Anzeiger, 240, 244. From the author.
- Howes, G. B.*—On the Vestigial Structures of the Reproductive Apparatus in the Male of the Green Lizard. From the author.
- Fastrow, J. J.*—The Perception of Space by Disparate Senses. Ext. "Mind," vol. xi. No. 44. From the author.
- Forbes, S. A.*—Arsenical Poisons for the Codling Moth, 1887. From the author.
- Warner, A. J.*—The Source of Value in Money. Philadelphia: H. C. Baird & Co., 1882. From the author.
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GENERAL NOTES.

GEOGRAPHY AND TRAVELS.¹

America. THE MUIR GLACIER.—The Muir Glacier, which presents a front of one mile to an inlet at the head of Glacier Bay, Alaska ($58^{\circ} 50' N.$ $136^{\circ} 40' W.$), has been investigated by Mr. G. F. Wright. Near the mouth of the bay is a cluster of low islands, evidently formed of glacial débris, and forested. The islands and shores in the upper part of the bay are devoid of forest. The mountains east and west of Muir Inlet are respectively two thousand nine hundred and three thousand one hundred and fifty feet high. Between these mountains the glacier is ten thousand six hundred and sixty-four feet wide. The angle of ice projects into water five hundred and sixteen feet deep, and is itself two hundred and fifty feet high. The surface of the ice rises to the east and north about one hundred feet to the mile. The main body of the glacier occupies a vast amphitheatre, with diameters ranging from thirty to forty miles. Nine main streams unite to form the grand trunk, and seventeen sub-branches can be seen. Rocky eminences rising above the surface are smoothed and scored and have glacial débris upon them, showing that, like the islands in the bay, they have been recently covered by ice. On the side from which the ice approached these islands it is several hundred feet higher than on the lee side. The ice in the eastern half of the amphitheatre is moving much more slowly than that in the western half. Much water runs below, and here and there there are superficial streams which eventually plunge downward through the ice. The front is perpetually breaking off, and Mr. Wright calculates that in August one hundred and forty million cubic feet enter the water daily, since the whole mile of width and seven hundred feet of depth move on at a

¹ Edited by W. N. LOCKINGTON, Philadelphia.

rate of forty feet per day. Evidences of the recession and diminution of this glacier are numerous.

AMERICAN NOTES.—Dr. Ten Kate has completed his explorations in Surinam, during which he visited the valley and grotto of the Guacharo, and has returned to Holland.

Mount St. Elias is, according to Mr. Seton Karr, not less than three miles east of the 141st meridian, and is thus in Canadian territory. The area of the Agassiz and Guyot Glaciers is estimated at not less than eighteen hundred square miles, but the Tyndall Glacier, issuing from the southwest face of the mountain, is the principal. Mr. Karr ascended one thousand feet higher than Lieutenant Schwatka. He thinks that the Jones River is produced by the melting of the glaciers, as he saw no break in the chain.

Africa. THE GERMAN AFRICAN ASSOCIATION.—Count Pfeil has made two important journeys for the German East African Association. On the first, after traversing the district of Makata, he entered that of Khutu, which has been acquired by the Association. The second journey was principally occupied by the exploration of the Ulanga River, which he ascended for one hundred and fifty miles to $35^{\circ} 5' \text{ E. long. and } 9^{\circ} 5' \text{ S. lat.}$ Below the Sugali Falls the river is known as the Rufiji. From Ngahoma towards its source in the mountains, northeast of Lake Nyassa, the direction of the river is first west and then southwest. The depth of its lower course varies from ten to more than twenty feet.

DR. LENZ'S JOURNEY.—Dr. Lenz reports great changes upon the Congo in the upper cataract region. The natives have to a great extent retreated from the river, and their place is occupied by trading settlements of Africans and Zanzibaris. Kibonge, two days above the last cataract, has some hundreds of homesteads and a few thousand inhabitants. Riba-Riba, named after its founder, a Mohammedan negro from Nyangwe, is also a large settlement. There are now enormous rice-fields in this region. Nyangwe is now less important as a trading-place than Kasonge, Tippoo Tip's headquarters, a few days to the southeast. The whole of the region is in the hands of the Arab traders and their dependents. Said Mohammed Kasuenda is Tippoo Tip's friendly rival.

DR. FISCHER'S LAST JOURNEY.—The late Dr. G. A. Fischer's journey in Eastern Equatorial Africa, though it failed in its main object, has added much valuable information respecting the east coast of Lake Victoria Nyanza. On his way out from Pangani, through Uwerewere, he ascertained that the Muara (Stanley's Liwumba) does not join the Simiu, but loses itself in the plains, or, in the wet season, in a lake. Rounding Speke Gulf, the party entered the sparsely-wooded country of Shashi, with mountains

five thousand feet high and an agricultural people. Kawirondo was crossed, and progress north was stopped by want of food at Ulala, the capital of Njoro. Returning, Thomson's route was followed by Lake Bavingo to Lake Naivasha. Here the party struck across the highlands of Kinangop, crossed the Aberdane range at a height of eight thousand nine hundred feet, marched through the thickly populated and richly cultivated district of Kikuyu, and, turning southwest, passed through the district of Ulu, along the east of the Ulu range, across the head-waters of the Ssabaki, and *via* Kissigau to Wanga, on the coast.

AFRICAN NOTES.—Dr. Junker reached Zanzibar December 11. On a late journey he followed the Welle-Makua to 22° E., only one hundred and fifty miles from the point upon the Mobangi reached by Mr. Grenfell.

Mr. J. A. Wray has reached the water-edge of the picturesque crater lake Chala, on Mount Kilimanjaro. There is but one spot, on the west side, where this small lake, which is surrounded by wooded banks one thousand feet high, can be reached. The water is clear, cool, and sweet, there is no mark of higher water, and no apparent inlet or outlet.

A monthly mail has been established between Zanzibar and the stations of the London Missionary Society on Lake Tanganyika.

Dr. Rousjie believes that he has been able to identify all the peaks of Central Tunis mentioned by Ptolemy and to confirm his hydrography.

Mr. J. T. Last has travelled from Blantyre to the Namuli Hills, traversing a district before unknown to Europeans. Lake Limbi is a long, narrow pool, forming the head-waters of the Sombani River.

It is said that Tippoo Tip has given in his adhesion to the Congo Free State and regrets the taking of the Falls Station, which occurred during his absence. Mr. Stanley was accompanied from Zanzibar to the Congo by Tippoo Tip, and expects the restoration of the falls through time. *Nature* states that upon his arrival at Stanley Falls with the first contingent of about two hundred and fifty of his men, Stanley will at once proceed to Emin Bey, taking with him probably a reinforcement from Tippoo Tip.

Asia. THE DRAGON LAKE.—According to Buddhist cosmogony, the four rivers of Paradise issue from the Dragon Lake of Central Asia. Hwang-Tsang, a Chinese traveller of the seventh century, visited this lake, and it appears that it is identical with Lake Rang-Kul, recently visited by Mr. Ney Elias in his journey across the Pamir from Yengi-hissar to Shignan. This is, at least, the opinion of Sir H. Rawlinson. The banks of the lake are encrusted with salts, yet the waters are sweet. A tribu-

tary of the Murghab seems to communicate with the lake by an underground channel, but the Kashgar River does not, as was stated by Hwang-Tsang, communicate with the lake. It is said to be presided over by a dragon, who is supposed to guard immense treasures and to reside in a cave near the summit of Cheragh-Tash, or "lamp-rock," a rock about one hundred feet high near the water's edge. A light, probably phosphorescent, burns in this cave, and is said to be the sparkle of the diamond in the dragon's forehead.

JAPAN.—The very interesting account of the physical geography of Japan, with remarks upon its people, contributed by Dr. E. Naumann, who has had in charge the geological survey of Japan, is itself too condensed to be capable of satisfactory condensation. Dr. Naumann states that the Japanese islands are the most elevated portions of an enormous chain of mountains, the height of which must be measured by adding the depth of the Tuscavera basin to the altitude of Fujinoyama (12,425 feet). These mountains are a vast earth-wave, the advanced frontier of Asia, igneous but not volcanic, since volcanoes play a very humble part, and fossils of the remotest periods are met with. The "Radiolarian slate" is Palæozoic. The angle of descent of the ocean-bed is about 3° . The Japanese chain consists of a long series of folds, running, as a rule, in the same direction as the chain, but towards the northeastward curving hook-like towards the Japan Sea. West of Tokio is a great transversal cleft or fissure in which several volcanoes, including Fujinoyama, have sprung up. The folds seem to have advanced from the Sea of Japan towards the ocean, but the great fissure resulted from their encounter with another chain stretching from Tokio Bay to the Bonin Islands. Dr. Naumann writes as one enchanted by the beauty of Japanese scenery, and has much admiration for the people, though his estimate of the Japanese house is more matter-of-fact than that of Professor Morse. Farmhouses have a hole for the smoke of the fire to escape, as was the case in England in Saxon times and later, and even rich Japanese feel at home in small and perishable structures.

AFGHANISTAN.—Afghanistan is still so far an unknown country that Captains Maitland and Talbot found a well-defined elevated tract filling up the whole space between the Hindu-Kush and the high mountains about the sources of the Hari-rud and Murghab. This range runs east and west at a distance of from five to twelve miles from the towns of Tashkurgan, Mazar-i-sharif (now the capital of Afghan Turkestan), and Balkh. It is hardly indicated on any map, and is not mentioned by previous travellers. The Hazanahs are a simple, good-natured people.

ASIATIC NOTES.—M. Tchersky has published at St. Petersburg a geological map of the borders of Lake Baikal.

The Russian Geographical Society has appointed a committee

to make more thorough investigations into the subject of the desiccation of the Siberian lakes.

The river Kara-ssu, near Lake Balkash, marked on existing maps, does not exist, and the streams of the At-Lessken range have long been dry. The water of the river Ili is being diverted to the eastern arms of the delta, while the western channels have become mere pools of standing water. The water in the main stream has not overflowed for three years, while the Kurli arm of the delta is becoming filled.

A new glacier called the Mushkelof, discovered in the Khan-Tengri group, exceeds in size the well-known Ssmenof Glacier.

Dr. Bunge and Baron von Toll have succeeded in their attempt to reach the New Siberian Islands. The former explored Ljachow, the latter Kotelny. Earlier the two explored five other islands. They returned to the mainland in October last.

Major Macgregor has contributed to the *Proc. Zool. Soc.* an account of Colonel Woodthorpe's expedition to the Irawadi. The ruling race in the district is that of the Buddistic Kamptis, who are Shans, and do not exceed twelve thousand in number. Their dress resembles that of the Scotch Highlands. The other races are the Singphos or Kakhyens, who are Thibeto-Burman by race but are spirit-worshippers, the Mishmis, a small, active, dirty race of Mongolian type, and the Nagas, who are miserably poor and almost without clothing.

Australia and Oceanica. THE NEW BRITAIN GROUP.—In the January issue of the *Proc. Roy. Geog. Soc.* Mr. H. H. Romelly gives an account of New Britain and New Ireland, or, as the Germans now style them, New Mecklenburg and New Pommern, as they were in 1881–1883, at which date the white population consisted chiefly of roughs and runaways. The two most conspicuous objects on approaching New Britain are the conical mountain named Mount Beauteemps Beaupre and an extinct volcano named The Mother. The latter shelters the harbor of Blanche Bay, which is surrounded by volcanoes, some still active. Vegetation is most luxuriant, and the forest-trees are covered with ferns, orchids, and lycopods. The natives are good agriculturists, making the most possible of the almost inaccessible spot to which mutual hostility compels them to resort. Our authority places the native population of New Britain at one hundred thousand, that of New Ireland at half that number. The former island has numerous small rivers, while the latter seems to have none worthy of the name. Good harbors have recently been discovered at the northwest end of New Ireland, and German traders are now stationed there. New Hanover, a large island northwest of New Ireland, has many rivers, fertile valleys, and wide-spreading plains sloping up to the high interior, but the natives are uncompromisingly hostile.

In New Britain betrothals take place at a very early age, but a high price is fixed on the girl, so that the man is often middle-aged before he can marry her. He may get impatient and elope, but in that case dare not return to his tribe. But elopement usually takes place when the price is nearly paid. The couple build a house in the bush; both families assemble, vow vengeance, paint as if for war, and sally forth and burn the house, from which the culprits are absent; the couple come back to the village in the morning, and the rest of the money is eventually paid. The curious point is that if after all the waiting the woman will not live with the man he cannot recover the property he has given to her parents.

The writer describes in detail the ceremony of the duk-duk, who is supposed to be a spirit who appears at the break of the day of a new moon. Men covered with a tunic and a very high hat personate the duk-duk and irritate the young men with blows of cane and club. Cannibalism—at least in the form of eating enemies killed in battle—still exists in these islands.

The Rev. George Brown, a Wesleyan missionary long resident in Duke of York Island, between New Britain and New Ireland, confirmed the charge of cannibalism, stating that when on one occasion he adventurously crossed New Ireland he saw at one house thirty-five human jaw-bones, some just picked, hanging on a rafter. The west coast of New Ireland was very well watered, and had large rivers. The standard of value among the people is six feet of strung shells, and the natives have words signifying “buy,” “sell,” “borrow,” “lend,” and “redeeming” a pledge, lend money at ten per cent., and have a word equivalent to “selling at a sacrifice.”

NEW GUINEA.—The Rev. I. Chalmers's account of his journeys in New Guinea (*Proc. Geog. Soc.*, February, 1887) contains, like all accounts of journeys in this region, far more ethnographical than geographical information. In 1878 Mr. Chalmers and his wife visited the whole coast from China Strait to Hall Sound; after this he went inland from Catamaran Bay to Discovery Bay, and he made several inland trips from Port Moresby. He also voyaged in a native “lakatoi,” made of three dugouts lashed together, from Port Moresby westward to the Annie River, visiting the cannibal district of Namau, and becoming so extremely friendly with the cannibals that the wonder was that they did not eat him for sheer love of him. Mr. Chalmers jests about the “skullery,”—an open space near the dubu, or temple, provided with pins to hang skulls on. The skulls were all carved and gayly colored. The dubu was nearly two hundred feet long and about eighty feet high to the peak in front, where there was a large veranda, but diminished to nine feet at the back. The aisle, hung with curtains of the frond of the young sago-palm, had a floor polished with blood and the tread of feet.


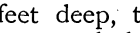
Inside there were six wicker gods with enormous frog-mouths and dugong-like bodies.

The Empress Augusta River, in German New Guinea, has been navigated for two hundred and twenty-four miles by Admiral von Schleinitz in the "Ottilie." The steam-launch proceeded one hundred and twelve miles farther, and returned from want of fuel. This was in the dry season.

GEOLOGY AND PALÆONTOLOGY.

Hummocks and Boulders of Decomposition in South-eastern Missouri.—Among the crystalline hills of Southeastern Missouri boulders of decomposition are frequently seen. In fact, it was owing to a small eminence—two hundred feet above the ancient broad Cambrian valley—being covered with detached boulders of iron ores that the name Iron Mountain derives its origin. From its surface it is said that seventeen million tons of iron boulders have been taken, these having been left behind by the removal, during long ages, of the intervening decomposed feldspathic rocks. Throughout the region the surfaces of the crystalline rocks are covered with their decayed remains to a depth from a few feet to fifty or seventy-five feet.

The rocks to which attention is here called are those of a knob, about five miles from Iron Mountain, rising out of a broad valley, where the quarries of Graniteville are situated, at an elevation above the sea of about twelve hundred feet, south of latitude 38° N.

The surface of the red granulite is commonly covered by its own material decomposed *in situ* to a depth of only a few feet. The decay is not always gradual from the surface inward, but frequently *per saltum*, leaving hard surfaces immediately below the more or less decomposed materials. But over an area of several acres these rocks are not covered with earthy matter. Here may be seen perfectly rounded or ellipsoid hummocks from twenty feet or less in width to forty or even one hundred feet. Some of the ridges are unbroken for a length of several hundred feet, while others are made up of a chain of hummocks, whose general trend as well as slope is southwest,—the same direction as that of the prevailing, but not numerous, joints shown in the adjacent quarries. Some of the parallel ridges or chains have flat, rounded surfaces, thus, , whilst others are like inverted U's, separated by narrow furrows from one foot to five feet or more in width, and from ten to twenty feet deep; thus, , which represent deep weathering and removal along the lines of joints. These hummocks have perfectly the form of typical *roches moutonnées*—less only the frequent, although generally superficial, scratches—of modern glacier regions. In many places, upon what we may call the *roches moutonnées* of Graniteville, there are boulders,